Attachment 4- Project Description

Humboldt Bay Municipal Water District Groundwater Study

DWR Local Groundwater Assistance Grant Program, P84 LGA 2012 Application

BMS Electronic File: “Att4_LGA12_HBMWD_ProjD_1of1”

PROJECT DESCRIPTION

Humboldt Bay Municipal Water District (HBMWD) is located in Humboldt County and serves the Humboldt Bay region, which is the most heavily populated and developed part of Humboldt County. HBMWD was established in 1956 to provide domestic and industrial water to various municipal agencies and industrial water users.

HBMWD manages groundwater resources within the Mad River Basin and is contracted to provide wholesale drinking water to the cities of Eureka, Arcata, and Blue Lake and the Community Services Districts of McKinleyville, Fieldbrook/Glendale, Humboldt, and Manila. In addition, HBMWD serves a limited amount of retail and industrial customers through its filtered water system. The total current population served by HBMWD is approximately 88,000 people. HBMWD currently delivers an average of approximately 12 million gallons per day (MGD) with a peak daily use of approximately 16.5 MGD and a peak instantaneous use of approximately 20 MGD through five (5) Ranney collectors (Collectors 1, 1A, 2, 3, and 4), herein referred to individually or as Collectors, adjacent to the Mad River. The Collectors draw water from an aquifer approximately 100 feet below the Mad River and have a known peak sustained capacity of 17.1 MGD.

HBMWD's Collectors are the heart of the water delivery system and critical to HBMWD's mission of providing reliable, high quality drinking water to their customers. The Collectors are currently over 50 years old and the summer time peak instantaneous demand exceeds their capacity. Peak daily demand is also fast approaching the Collector's maximum capacity. Replacement of laterals is necessary to HBMWD to meet current and future contracted demands.

HBMWD has undertaken a systematic approach to assess the condition of the Collectors and plan for their replacement as well as maintain and increase their capacity. In the mid-1990's, HBMWD established goals to develop information for the longevity of the system and identify alternatives to increase system yield. In 2005, HBMWD developed the initial groundwater model of the area near the Collectors. This model was used in the development of the HBMWD's Groundwater Management Plan (GWMP). The model was also used in conjunction with HBMWD's strategic planning to develop and guide the Capital Improvement Plan (CIP) for the Collectors and most recently (2011 through 2012) in the design for the rehabilitation of Collector 3. During historical groundwater studies and pre-construction subsurface investigation at Collector 3, data gaps were identified in the groundwater model. Further refinement of the groundwater model is needed to close data gaps, further understand the groundwater supply, and continue to plan for Collector lateral replacement.

HBMWD proposes to complete a groundwater study to assist in refinement of the groundwater model. The refined groundwater model will be used to update the HBMWD GWMP in the future. The Groundwater Study will include:

- Perform mapping of the bedrock around Collectors 1, 1A, 2, and 4;
- Update and refine the previously developed groundwater model with additional data near Collectors 1, 1A, 2, and 4 not included in the original groundwater modeling efforts.
- Complete a final evaluation to determine the potential yields from Collectors 1, 1A, 2, and 4.
- Develop recommendations regarding a Collector for lateral replacement under the broader Ranney Collector Rehabilitation program developed in the CIP.

The proposed groundwater study will further the goals of HBMWD's GWMP. The groundwater study will build upon the previous information obtained from the 2012 Collector 3 lateral replacement project and historical stratigraphic information to refine HBMWD's understanding of the hydrogeologic conditions in the aquifer serving the Collectors. The proposed project will improve HBMWD's understanding of the influence of pumping at the Ranney Collectors on turbidity within the groundwater resource through collection of additional data during pump testing.

The work on Collector 3 showed new laterals can improve yield while reducing drawdown. The results of the proposed groundwater study will identify improvement options for the other Collectors, meeting the GWMP goals of enhancing the reliability of groundwater in the area and helping to ensure the long-term availability of high quality groundwater. HBMWD is committed to providing a long-term source of high quality potable water for the residents of Humboldt County, as such, the GWMP is a living document which serves as a tool for strategic planning to assist in balancing strategic planning of capital improvements with protection of the groundwater resource.